REMARKS

Claims 1-8 are pending in this application. Claim 7 is canceled without prejudice or disclaimer, and claims 1, 2, 4, 5 and 8 are amended herein. Upon entry of this amendment, claims 1-6 and 8 will be pending. Entry of this amendment and reconsideration of the rejections are respectfully requested.

No new matter has been introduced by this Amendment. Support for the amendments to the claims is as follows:

Claim 1 has been amended to recite "A laminate ~~having~~ consisting essentially of a heat ray reflection type substrate having solar radiation reflecting properties and visible light reflectance of 10% or more, and ...." Support for the recitation may be found in recitation regarding the "substrate" in the deleted portion of claim 1 at lines 4-5, and in the disclosure regarding a "heat ray reflection type substrate" at page 2, line 1, to page 3, line 24, of the specification. Claim 1 has also been amended to recite "said ink containing fine particles which absorb visible-region light and transmit near-infrared-region light and infrared-region light." Support for this recitation may be found at page 4, lines 2-21. Claim 1 has also been amended in the last clause to recite a limitation on particles in the visible light absorbing ink, which is incorporated from canceled claim 7.

The amendments to claims 2, 4, 5 and 8 are for consistency with the recitation of "heat ray reflection type substrate" in claim 1.

Claims 1-4 and 6 are rejected under 35 U.S.C. §102(e) as being anticipated by the U.S. Patent of Strickler et al. (6,858,306; hereinafter "Strickler"); as evidenced by the U.S. Patent of Oliver et al. (4,797,317; hereinafter "Oliver"). (Office action paragraphs no. 6-9)

Reconsideration of the rejection is respectfully requested in view of the amendments to the claims.

The Examiner considers that Strickler teaches a laminate ("article") having a visible light coating ("solar control coating") on one or both sides of a substrate. However, the "solar control coating" taught by Strickler is so constructed so as to selectively absorb near-infrared light rather than visible light, and does not have a visible light absorbing film as recited in claim 1.

In particular, claim 1 requires an "ink containing fine particles which absorb visible-region light and transmit near-infrared-region light and infrared-region light" and "said visible light absorbing ink contains at least one fine particles of a compound oxide selected from the group consisting of Cu-Fe-Mn, Cu-Cr, Cu-Cr-Mn, Cu-Cr-Mn-Ni, Cu-Cr-Fe and Co-Cr-Fe, titanium black, titanium nitride, titanium oxynitride, a dark-colored azo pigment, a perylene black pigment, an aniline black pigment and carbon black, said fine particles having an average dispersed-particle diameter of 300 nm or less in the ink."

Strickler states in the abstract that:

> "A glass article having a solar control coating is disclosed for use in producing heat reducing glass especially for use in architectural windows. The coated glass article includes a glass substrate, a coating of an antimony doped tin oxide deposited on and adhering to the glass substrate and a coating of fluorine doped tin oxide deposited on and adhering to the surface of the coating of antimony doped tin oxide."

As such, Strickler discloses a coated glass article comprising a "glass substrate," a "coating of antimony doped tin oxide" coated on this glass substrate and a "coating of fluorine doped tin oxide."

Strickler also states in column 2, lines 31-38, that:

> "The antimony doped tin oxide coating in the coated glass article of the invention provides for absorption of solar energy. While this includes the absorption of some visible light, <u>the antimony doped tin oxide coating is relatively selective, absorbing more near infrared energy than visible light</u>. The antimony doped tin oxide coating thus reduces the total solar energy transmittance of the coated glass article of the invention." (emphasis added)

The above-mentioned "antimony doped tin oxide coating" of Strickler has such properties as of selectively absorbing near infrared light rather than visible light. Such properties are optical properties **opposite** to those achieved by the above-mentioned "visible light absorbing film" according to the present invention, which film absorbs light in a visible region and transmits light in the near-infrared region and in the infrared region. That is, Strickler's coated glass article does **not** include a "visible light absorbing film" as recited in claim 1.

In this connection, Table 1 in column 7 of Strickler shows that the visible light transmittance (Tvis) of the coated glass article is 41.51% (Ex. 12) to 84.05% (Ex. 6) which are large in numerical value and hence are markedly different from the visible light transmittance of visible light made incident from the visible light absorbing film in the laminate of the present invention, that is, "2.1% (Example 3) to 12.4% (Example 8)."

Strickler also states in column 2, lines 48-59, that:

> "The specific coating stack on the glass substrate provides a neutral colored article having <u>a high visible light transmittance, a reduced total solar energy transmittance</u>

> and a low emittance. The use of the inventive article in architectural glazings results in a glazing that rejects solar energy in the summer and provides a low U value for the winter. <u>It is an object of the invention to provide a neutral colored</u> <u>architectural glazing that transmits a degree of visible light and significantly reduces the amount of solar energy</u> <u>transmitted</u>" (emphasis added).

Since Strickler's coated glass article has a **high transmittance** of visible light and also has some properties to reduce the amount of solar energy transmitted, the solar control coating is grouped into a conventional <u>heat</u> <u>ray absorption type</u>.

Thus, the coated glass article of Strickler is devoid of a "visible light absorbing film" as recited in the present claims, and Strickler's solar control coating must be considered to be a conventional <u>heat ray absorption type</u>, as disclosed on page 2, line 1, to page 3, line 24, of the present specification. Nowhere does Strickler disclose the laminate of the present invention, which consists essentially of a "heat ray reflection type substrate" and a "visible light absorbing film" having been formed on one side or both sides of this substrate.

Claims 1-4 and 6, as amended, are therefore not anticipated by Strickler et al.

Claims 5, 7 and 8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Strickler in view of Oliver. (Office action paragraphs no. 10-11)

Claims 4, 5 and 7 are rejected under 35 U.S.C. §103(a) as being unpatentable over Strickler, either as evidenced by or taken in view of Oliver, as applied to the rejections of claims 1-5 above, and further in view of the Japanese Patent Publication of Toshiharu et al. (JP 10-182190; hereinafter "Toshiharu"). (Office action paragraphs no. 12-14)

Claim 7 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Strickler, either as evidenced by or taken in view of Oliver, as applied to the rejections of claims 1-5 above, and further in view of the Japanese Patent Publication of Masaaki et al. (JP 2000-238170; hereinafter "Masaaki"). (Office action paragraphs no. 15-17)

Reconsideration of these rejections is respectfully requested in view of the amendments to the claims. Applicants note that the rejections of claim 7 are moot in view of the cancellation of claim 7 without prejudice or disclaimer. The limitation of claim 7 has been incorporated into base claim 1.

As noted above, Strickler et al. does not have a visible light absorbing film as recited in claim 1. Applicant submits that Oliver, Toshiharu and Masaaki do not provide any suggestion to modify Strickler to have such a visible light absorbing film.

In particular, as stated in the Response of October 2, 2007, a composite solar control sheet of Oliver has a structure of [a second polymeric, dye-impregnated film stratum]/[an adhesive layer]/[a first polymeric film stratum including a vignette layer of metal]. When [a first polymeric film stratum including a vignette layer of metal] is used to resemble the "heat ray reflection type substrate" according to the present invention, [a second polymeric, dye-impregnated film stratum] would correspond to the "visible light absorbing film" according to the present invention.

And as to [a second polymeric, dye-impregnated film stratum], as described by Oliver in column 3, lines 60-63, a coat of dye is formed by spraying, printing and the like except means for

impregnating the dye and may be used to form [a second polymeric film stratum having a coat of dye].

However, with regard to [a second polymeric, dye-impregnated film stratum or a second polymeric film stratum having a coat of dye], Oliver does not disclose the limitation required for the "visible light absorbing film" in the present invention, that is, the limitation of forming this film by the use of the "visible light absorbing ink containing fine particles which absorb light in the visible region and transmit light in the near-infrared region and infrared region." Nor does Oliver disclose that this visible light absorbing ink should contain a compound oxide selected from the group consisting of "Cu-Fe-Mn, Cu-Cr, Cu-Cr-Mn, Cu-Cr-Mn-Ni, Cu-Cr-Fe and Co-Cr-Fe, titanium black, titanium nitride, titanium oxynitride, a dark-colored azo pigment, a perylene black pigment, an aniline black pigment and carbon black."

And Oliver only teaches that, by employing a structure of [a second polymeric, dye-impregnated film stratum]/[an adhesive layer]/[a first polymeric film stratum including a vignette layer of metal], a composite film can be obtained which has a light transmission value in the area of the driver's sight line of less than 35% and reflectivity less than about 35% in the area of the sight line (see column 3, lines 29-42 of Oliver).

Thus, Oliver merely discloses a composite solar control sheet having [a first polymeric film stratum including a vignette layer of metal] that resembles the "heat ray reflection type substrate" in the present invention. Oliver teaches nothing about the "visible light absorbing film" in the

present invention, which absorbs visible-region light and transmits near-infrared-region light and infrared-region light.

That is, the composite solar control sheet disclosed by Oliver is only a structural member provided with [a first polymeric film stratum including a vignette layer of metal] that is similar to a substrate of a conventional "heat ray reflection type." Strickler's glass article, as discussed above, is also a conventional "heat ray reflection type" substrate, and the combination with Oliver cannot produce the present invention.

By the same token, the present claims are not obvious over Strickler and Oliver further combined with Toshiharu or Masaaki.

In addition to the above arguments regarding the combination of references, the present invention has effects that are unexpected over the prior art. In particular, one subject of this invention is to eliminate such disadvantages as those caused in conventional substrates of a heat ray reflection type in which shielding films have been formed on the surfaces of films, glass or the like.

More specifically, the heat ray reflection type substrates have shielding films (for example, metallic films formed by sputtering) formed on the surface of glass or the like. Such shielding films reflect light having wavelengths ranging from the visible region up to the infrared region, and hence can make the substrate less rise in temperature and have very good insulating properties. Since, however, they also reflect light having wavelengths in the visible region, they have had a disadvantage that they are so glaring as to look like mirrors and are unfavorable in view of design quality.

On the other hand, in heat ray absorption type substrates, shielding films (for example, films containing organic dyes, organic pigments, or coloring materials such as oxides, sulfides, or the like, of metals) have been formed on the surface of glass or like. Such substrates have low light reflection due to these shielding films and can be free of any glaringness due to the reflection in the visible region, and hence have superior design quality. However, since the heat ray absorption type substrates allow the heat energy absorbed in the shielding films, to radiate for example into the interior, they have had a disadvantage that they have lower heat insulating efficiency than the above heat ray reflection type substrates.

Accordingly, one subject of the present invention is to provide a heat ray reflection type substrate which maintains superior heat insulation efficiency and also enables restraint of glaringness in the visible region.

This invention has been accomplished on the basis of the following technical finding made by the present inventors.

Specifically, they have come up with a discovery that, where a laminate is so constructed as to have a visible light absorbing film formed on at least one side of the above-mentioned heat ray reflection type substrate having solar radiation reflecting properties, using a visible light absorbing ink containing fine particles which may selectively absorb the visible-region light and transmit the near-infrared-region light and infrared-region light, only the visible-region light can selectively be absorbed as the substrate is kept to have its solar radiation reflecting properties, in virtue of the action of the visible light absorbing film formed.

Thus, by using, as the above fine particles which may selectively absorb the visible-region light and transmit the near-infrared-region light and infrared-region light, "a compound oxide selected from the group consisting of Cu-Fe-Mn, Cu-Cr, Cu-Cr-Mn, Cu-Cr-Mn-Ni, Cu-Cr-Fe and Co-Cr-Fe, titanium black, titanium nitride, titanium oxynitride, a dark-colored azo pigment, a perylene black pigment, an aniline black pigment and carbon black," and also by using, as a heat ray reflection type substrate, "a substrate having solar radiation reflecting properties and visible light reflectance of 10% or more," the laminate according to the present invention has been accomplished which is free of the disadvantages previously noted.

The laminate of claim 1, which consists essentially of the above-mentioned heat ray reflection type substrate and the visible light absorbing film having been formed on one side or both sides of this substrate, enables restraint of glaringness in the visible region. This is because visible light made incident in the laminate is absorbed in the above-mentioned visible light absorbing film, and visible light reflection from the substrate can be lowered.

On the other hand, even if light in the near-infrared region and infrared region (780 nm or more) is made incident in the above laminate, light in the near-infrared region and infrared region is not absorbed in the above-mentioned visible light absorbing film and transmits through this film. Thus, the laminate retains solar radiation reflection from the substrate and also enables the substrate to maintain its heat insulating properties (see page 5, line 19 to page 6, line 3 of the specification).

This unexpected result is supported by the Examples in the specification, as follows:

In the Examples, laminates were made by using, as the above-mentioned "heat ray reflection type substrate," an Al-vacuum-deposited semitransparent PET film (EMI-10 manufactured by Milareed Co., Ltd., PET film thickness 25 mm) and by coating on one side or both sides of this substrate a "visible light absorbing ink" containing a compound oxide such as Cu-Fe-Mn, a dark-colored azo pigment or the like. The "degree of reduction of visible light reflection" and the "degree of reduction of solar radiation reflection," both mentioned above, were measured on each of the resulting laminates (see page 22, line 13 to page 24, line 2 of the specification).

As shown in "Table 1" on page 30 of the specification, it can be confirmed that the transmittance of visible light having been made incident from the visible light absorbing film (Table 1 indicates "F. surf. :Film surface") is from 2.1% (Example 3) to 12.4% (Example 8), which are very low in numerical value.

In the (1) item under the heading of "- Confirmation -" on page 33 of the specification, the following facts can also be confirmed.

First, it is confirmed that, from the numerical value (0.14 to 0.47) of each Example shown in the "degree of reduction of visible light reflection" section, the "degree of reduction of visible light reflection" is 0.9 or less, that is, a sharp reduction in the degree of reduction of visible light reflection when compared to an Al-vacuum-deposited semitransparent PET film (substrate of a conventional heat ray reflection type) according to the Comparative Example, which film has no visible light absorbing film formed thereon. This enables restraint of glaringness due to visible light

reflection from the Al-vacuum-deposited semitransparent PET film (laminate according to the present invention) according to each Example.

Furthermore, it is confirmed that, from the numerical value (0.27 to 0.71) of each Example shown in the "degree of reduction of solar radiation reflection" section, the "degree of reduction of solar radiation reflection" is 0.25 or more, that is, the solar radiation reflection from the heat ray reflection type substrate is retained, and the Al-vacuum-deposited semitransparent PET film according to each Example is kept to have its sufficient heat insulating properties.

Therefore, the present claims are not obvious over Strickler, Oliver, Toshiharu and Masaaki, taken separately or in combination.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants' undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

KRATZ, QUINTOS & HANSON, LLP

Daniel A. Geselowitz

Daniel A. Geselowitz, Ph.D.
Agent for Applicants
Reg. No. 42,573

DAG/xl

Atty. Docket No. **050034**
Suite 400
1420 K Street, N.W.
Washington, D.C. 20005
(202) 659-2930

23850
PATENT & TRADEMARK OFFICE

Enclosure: Petition for Extension of Time

H:\050\050034\Amendment in re OA of 06-26-08